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1894/95

THE

JOHNS HOPKINS

MEDICAL SCHOOL

ESTABLISHED BY THE JOHNS HOPKINS UNIVERSITY
IN CONNECTION WITH THE JOHNS HOPKINS HOSPITAL,
BALTIMORE, MARYLAND.

ANNOUNCEMENT FOR 1894-95

THE JOHNS HOPKINS PRESS
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TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY.

C. MORTON STEWART,
President.

FRANCIS WHITE,
Treasurer.

LEWIS N. HOPKINS,
Secretary.

CHARLES J. M. GWYNN,*

J. HALL PLEASANTS,

LEWIS N. HOPKINS,

ALAN P. SMITH,

FRANCIS WHITE,

ROBERT GARRETT,

JAMES CAREY THOMAS,

JAMES L. McLANE,

C. MORTON STEWART,

W. GRAHAM BOWDOIN,

JOSEPH P. ELLIOTT,

WILLIAM T. DIXON,

THE PRESIDENT OF THE UNIVERSITY, *ex officio.*

* Deceased.

TRUSTEES OF THE JOHNS HOPKINS HOSPITAL.

WILLIAM T. DIXON,
President.

JOSEPH P. ELLIOTT,
Vice President.

LEWIS N. HOPKINS,
Secretary.

FRANCIS WHITE,

JAMES CAREY,

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C. MORTON STEWART,

CHARLES J. M. GWYNN,*

WILLIAM T. DIXON,

ALAN P. SMITH,

JOHN E. HURST,

JOSEPH P. ELLIOTT,

JAMES L. McLANE,

GEORGE W. CORNER,

CHARLES F. MAYER.

* Deceased.

FACULTY.

The names are arranged in the several groups in the order in which the members of the staff assumed their duties.

PRESIDENT.

DANIEL C. GILMAN, LL. D.

A. B., Yale College, 1852, and A. M., 1855; LL. D., Harvard University, 1876, St. John's College, 1876, Columbia College, 1887, Yale University, 1889, and University of North Carolina, 1889; Professor in Yale College, 1863-72; President of the University of California, 1872-75.

PROFESSORS.

WILLIAM H. WELCH, M. D.

Professor of Pathology and Dean.

A. B., Yale College, 1870; M. D., College of Physicians and Surgeons (N. Y.), 1875; Professor of Pathological Anatomy and General Pathology in the Bellevue Hospital Medical College, N. Y., 1879-84; *Pathologist to the Johns Hopkins Hospital.*

IRA REMSEN, M. D., PH. D., LL. D.

Professor of Chemistry.

A. B., College of the City of New York, 1865; M. D., College of Physicians and Surgeons, N. Y., 1867; Ph. D., University of Göttingen, 1870; LL. D., Columbia College, 1893; Professor of Chemistry in Williams College, 1872-76, and previously Assistant in Chemistry in the University of Tübingen; *Editor of the American Chemical Journal.*

WILLIAM OSLER, M. D., F. R. C. P.

Professor of the Principles and Practice of Medicine.

M. D., McGill University, 1872; Fellow of the Royal College of Physicians, London; Professor of the Institutes of Medicine, McGill University, Montreal, 1874-1884; Professor of Clinical Medicine, University of Pennsylvania, 1884-89; *Physician in Chief to the Johns Hopkins Hospital.*

HENRY M. HURD, M. D.

Professor of Psychiatry.

A. B., University of Michigan, 1863, and A. M., 1870; M. D., University of Michigan, 1866; Superintendent of the Eastern Michigan Asylum, 1878-89; *Superintendent of the Johns Hopkins Hospital.*

WILLIAM S. HALSTED, M. D.

Professor of Surgery.

A. B., Yale College, 1874; M. D., College of Physicians and Surgeons (New York), 1877; formerly Attending Surgeon to the Presbyterian and Bellevue Hospitals, Associate Surgeon to Roosevelt Hospital, and Surgeon in Chief to Emigrant Hospital, New York; *Surgeon in Chief to the Johns Hopkins Hospital.*

*Faculty.***HOWARD A. KELLY, M. D.***Professor of Gynecology and Obstetrics.*

A. B., University of Pennsylvania, 1877, and **M. D.**, 1882; Associate Professor of Obstetrics, University of Pennsylvania, 1888-89; *Gynecologist and Obstetrician to the Johns Hopkins Hospital.*

FRANKLIN P. MALL, M. D.*Professor of Anatomy.*

M. D., University of Michigan, 1883; Fellow of the Johns Hopkins University, 1886-88, and Assistant in Pathology, 1888-89; Adjunct Professor of Anatomy, Clark University, 1889-92; Professor of Anatomy, University of Chicago, 1892-93.

JOHN J. ABEL, M. D.*Professor of Pharmacology.*

Ph. B., University of Michigan, 1883; Graduate Student, Johns Hopkins University, 1883-84; **M. D.**, University of Strassburg, 1888; Professor of Materia Medica and Therapeutics, University of Michigan, 1891-93.

WILLIAM H. HOWELL, PH. D., M. D.*Professor of Physiology.*

A. B., Johns Hopkins University, 1881, Fellow, 1882-84, Ph. D., 1884; Assistant in Biology, 1884-85; Associate, 1885-86, and Associate Professor, 1888-89; Lecturer, University of Michigan, 1889-90; **M. D.**, 1890, and Professor of Physiology and Histology, 1890-92; Associate Professor of Physiology, Harvard University, 1892-93.

WILLIAM K. BROOKS, PH. D., LL. D.*Professor of Comparative Anatomy and Zoölogy.*

A. B., Williams College, 1870, and **LL. D.**, 1893; **Ph. D.**, Harvard University, 1875; Fellow, Johns Hopkins University, 1876. Associate, 1876-83, and Associate Professor, 1883-91.

LECTURER.**JOHN S. BILLINGS, M. D., LL. D.***Lecturer on the History and Literature of Medicine.*

A. B., Oxford College (Ohio), 1857, and **A. M.**, 1860; **M. D.**, University of Cincinnati, 1860; **LL. D.**, University of Edinburgh, 1884, Harvard University, 1886; **D. C. L.**, University of Oxford, 1889; Hon. **M. D.**, University of Dublin, 1892; Surgeon, U. S. Army, and Librarian of the Surgeon-General's Office.

ASSOCIATES AND ASSISTANTS.**GEORGE H. F. NUTTALL, M. D., PH. D.***Associate in Hygiene.*

M. D., University of California, 1884; Graduate Student in the Johns Hopkins University, 1886-86. 1890-91, and Assistant, 1891-92; **Ph. D.**, University of Göttingen, 1890.

SIMON FLEXNER, M. D.*Associate in Pathology.*

M. D., University of Louisville, 1889; Graduate Student in the Johns Hopkins University, 1890-91, and Fellow in Pathology, 1891-92.

JOHN M. T. FINNEY, M. D.*Associate in Surgery.*

A. B., Princeton College, 1884; M. D., Harvard University, 1888; Associate in Surgery, Johns Hopkins Hospital.

HUNTER ROBB, M. D.*Associate in Gynecology.*

M. D., University of Pennsylvania, 1884; Associate in Gynecology, Johns Hopkins Hospital.

J. WHITRIDGE WILLIAMS, M. D.*Associate in Obstetrics.*

A. B., Johns Hopkins University, 1886; M. D., University of Maryland, 1888; Assistant in Gynecology, Johns Hopkins Hospital.

B. MEADE BOLTON, M. D.*Associate in Bacteriology.*

M. D., University of Virginia, 1879; Graduate Student in the Johns Hopkins University, 1886-87, and Assistant in Pathology, 1887-88; Professor of Physiology and Hygiene, South Carolina University, 1888-89; Director of the Department of Bacteriology, Hoagland Laboratory, Brooklyn, 1889-92.

THOMAS B. ALDRICH, PH.D.*Assistant in Physiological Chemistry.*

Ph. D., University of Jena, 1891, and Assistant in Chemistry, Jena, 1891-92.

J. WILLIAMS LORD, M. D.*Instructor in Anatomy.*

A. B., Johns Hopkins University, 1884; M. D., University of Pennsylvania, 1887.

LEWELLYN F. BARKER, M. B.*Associate in Anatomy.*

M. B., University of Toronto, 1890; Fellow in Pathology, Johns Hopkins University, 1892-94.

GEORGE P. DREYER, PH. D.*Associate in Physiology.*

A. B., Johns Hopkins University, 1887, Fellow in Biology, 1889-90, and Ph. D., 1890.

STUDENTS.*

CANDIDATES FOR THE DEGREE OF M. D.

CHARLES RUSSELL BARDEEN.	Syracuse, N. Y.	605 <i>N. Eutaw St.</i>
A. B., Harvard University, 1893.		
THOMAS RICHARDSON BROWN.	Baltimore.	1033 <i>Cathedral St.</i>
A. B., Johns Hopkins University, 1892.		
CORNELIA CHAPEL CHURCH.	Pasadena, Cal.	128 <i>W. Franklin St.</i>
A. B., Smith College, 1888.		
WALTER S. DAVIS.	Minneapolis, Minn.	1019 <i>McCulloh St.</i>
S. B., Amherst College, 1893.		
LESTER WIGGINS DAY.	Baltimore.	9 <i>W. North Av.</i>
Ph. B., Yale University, 1893.		
MABEL STANLEY GLOVER.	Washington, D. C.	812 <i>St. Paul St.</i>
S. B., Wellesley College, 1892.		
LOUIS PHILIP HAMBURGER.	Baltimore.	1501 <i>Eutaw Place.</i>
A. B., Johns Hopkins University, 1893.		
GUY LEROY HUNNER.	Madison, Wis.	645 <i>N. Paca St.</i>
S. B., University of Wisconsin, 1893.		
FRANK ALLEMONG LUPTON.	Auburn, Ala.	1213 <i>Bolton St.</i>
S. B., Alabama Polytechnic Institute, 1891, and M. S., 1892.		
IRVING PHILLIPS LYON.	Hartford, Conn.	220 <i>W. Madison St.</i>
A. B., Yale University, 1893.		
CHARLES N. MCBRYDE.	Blacksburg, Va.	1205 <i>Bolton St.</i>
S. B., University of South Carolina, 1891; M. S., Virginia Agricultural and Mechanical College, 1892.		
WILLIAM WATSON MCCULLOH.	Baltimore.	929 <i>McCulloh St.</i>
A. B., Johns Hopkins University, 1889.		
JAMES FARNANDIS MITCHELL.	Baltimore.	1013 <i>Cathedral St.</i>
A. B., Johns Hopkins University, 1891.		
JOSEPH LONGWORTH NICHOLS.	Cincinnati, O.	<i>The Albany.</i>
A. B., Harvard University, 1893.		
MARY SECORD PACKARD.	Bayonne, N. J.	812 <i>St. Paul St.</i>
A. B., Vassar College, 1892.		
OMAR BORTEN PANCOAST.	Woodstown, N. J.	916 <i>McCulloh St.</i>
S. B., Swarthmore College, 1893.		
CLEMENT ANDARIESE PENROSE.	Baltimore.	13 <i>E. Preston St.</i>
A. B., Johns Hopkins University, 1893.		
RICHARD PEARSON STRONG.	Baltimore.	<i>Fort McHenry.</i>
Ph. B., Yale University, 1893.		

* These students matriculated in the first year of the regular medical course in October, 1893.

ENDOWMENT.

The Medical Department of the Johns Hopkins University was opened for the instruction of students October 2, 1893.

The founder of the Johns Hopkins University, in devoting his large fortune to the establishment of the university and the hospital, had in view the organization of a school of medicine. In his letter addressed to the Trustees of the hospital, dated March 10th, 1873, these significant words occur :

“ It will be your especial duty to secure, for the service of the hospital, surgeons and physicians of the highest character and greatest skill In all your arrangements in relation to this hospital, you will bear constantly in mind that it is my wish and purpose that the institution shall ultimately form a part of the Medical School of that University for which I have made ample provision by my will.”

When the University was opened in 1876, ample provision was made for instruction in those sciences, such as physics, chemistry, and biology, which lead up naturally to the professional study of medicine. In 1884 the professorship of pathology was filled and the pathological laboratory was opened. In 1889 the Johns Hopkins Hospital was opened and the physician, surgeon, and gynecologist in chief to the hospital were appointed to the professorships respectively of medicine, surgery, and gynecology and obstetrics. Opportunities for instruction were afforded to graduates in medicine. Ampler endowment, however, was needed to complete the organization of a medical department worthy of the University.

Gifts amounting to \$111,731.68, most of which were offered to this University in October, 1890, by a committee of women, and an additional gift of \$306,977, offered to the University in December, 1892, in addition to her previous subscriptions, by Miss Mary Elizabeth Garrett, made up, with other availa-

ble resources, the amount of \$500,000, which had been agreed upon by the Trustees as the minimum endowment of the Medical Department. These contributions were made upon condition that women be received upon the same terms as men. This endowment enabled the Trustees to complete the organization of the Medical Department and to open it for instruction in 1893.

The Medical Department is an integral part of and under the direction of the Johns Hopkins University. It derives great advantages from its close affiliation with the Johns Hopkins Hospital.

TERMS OF ADMISSION.

The Medical Department of this university is planned for the professional education of those students who have been especially fitted to receive its instructions by a course of preliminary training in the liberal arts, and especially in those branches of science, like physics, chemistry, and biology, which underlie the medical sciences. Men and women are admitted upon the same terms.

As candidates for the degree of Doctor of Medicine the school receives:

1. Those who have satisfactorily completed the Chemical-Biological course which leads to the A. B. degree in this university.
2. Graduates of approved colleges or scientific schools who can furnish evidence: (a) That they have a good reading knowledge of French and German; (b) That they have such knowledge of physics, chemistry, and biology as is imparted by the regular minor courses, given in these subjects in this university.

The phrase "a minor course," as employed in this university, means a course that requires a year for its completion. In physics, five class-room exercises and three hours a week in

the laboratory ; in chemistry and biology five class-room exercises and five hours a week in the laboratory in each subject are required.¹

3. Those who give evidence by examination that they possess the general education implied by a degree in arts or in science from an approved college or scientific school and the knowledge of French, German, physics, chemistry, and biology above indicated.

Applicants for admission will receive blanks to be filled out relating to their previous courses of study.

¹ As so many inquiries have been received regarding the character and amount of the requisite training indicated by the term "Minor Course" in these sciences, it may be stated that the candidate should have followed for at least a year a laboratory course in the structure, life history, and vital activities of selected types of animal and vegetable life. In the Chemical-Biological course for undergraduates in this university the laboratory work in biology at present includes the study of such selected types as amoeba, haematooccus, yeast, penicillium, bacteria, mushroom, hydra, vorticella, a fern, a flowering plant, the earthworm, lobster, anodon; the gross and minute anatomy of the frog, the development of its eggs, the structure, formation, and metamorphoses of the tadpole; the study and drawing of the bones of the human skeleton; the comparison of some parts of related vertebrate skeletons; dissection of a mammal; the field and laboratory study of some few flowering plants. The laboratory work is the more important part, the lectures and other exercises subsidiary.

It is of course not to be understood that this curriculum of biological work must be rigidly followed. Equivalent work will be accepted.

The candidate should have followed a course in general Chemistry for at least a year. This course should include laboratory work, about five hours a week through the year, and lectures and class-room work covering the outlines of inorganic chemistry and the elements of organic chemistry. A good knowledge of the subject as presented in Remsen's "Introduction to the Study of Chemistry" may be regarded as the minimum requirement. A fuller knowledge of Chemistry is, of course, desirable.

In Physics, the candidate should have followed a collegiate course for at least one year. This should include five hours a week of class-room work and at least three hours a week of quantitative work in the laboratory. Special attention should be given to theoretical mechanics and to the mechanical and electrical experiments.

They are required to furnish certificates from officers of the colleges or scientific schools where they have studied as to the courses pursued in physics, chemistry, and biology. If such certificates are satisfactory, no examination in these subjects will be required.

Hearers, not candidates for a degree, will be received at the discretion of the Faculty.

Candidates who have not received diplomas of the required character will be examined for admission at the beginning of the session.

No one will be admitted to advanced standing without furnishing evidence that these terms of admission as regards preliminary training have been fulfilled, and that courses equivalent in kind and amount to those given here, preceding that year of the course for admission to which application is made, have been satisfactorily completed.

GENERAL PLAN OF INSTRUCTION.

The course of instruction continues through four years. The academic year begins October 1, and closes about the middle of June. There are recesses at Christmas and Easter. Anatomy, including normal histology and embryology, physiology and physiological chemistry are the principal studies of the first year. The study of anatomy is continued in the second year, and, in addition, pharmacology, general pathology and pathological anatomy, bacteriology, and the general principles of medicine and surgery are taken up. During the last two years clinical instruction will be given in medicine, surgery, obstetrics, and gynecology, and the various special branches of practical medicine and surgery, such as ophthalmology, dermatology, laryngology, neurology, paediatrics. Instruction in hygiene, psychiatry, legal medicine and medical history will be provided during the course.

Abundant clinical material is afforded by the Johns Hopkins Hospital and Dispensary. The Clinical Amphitheatre and the Clinical Laboratories are in the Hospital buildings.

Physiology is taught in the Biological Laboratory of the University.

The Pathological Laboratory, which for the present accommodates also the department of pharmacology, is a four-story building on the grounds of the Hospital. This building contains the autopsy theatre, the pathological museum, and rooms for bacteriology, pathological histology, experimental pathology, pharmacology, and special research.

A new and commodious Anatomical Building, three stories in height, is to be erected this year upon a large plot of ground owned by the University near the Hospital. It is expected that this building, in which the department of physiological chemistry will for the present find accommodation, will be ready for use in the Autumn of 1894.

In the main building of the Hospital is a good medical library with full sets of medical periodicals. The various special laboratories possess also appropriate libraries. These, as well as the libraries and reading room of the University, and those of the Peabody Institute, are available without charge for the use of medical students.

Practical work in the dissecting room, in the laboratory, and at the bedside, demonstrations, clinics, lectures, and recitations, form the most prominent features of the methods of instruction.

FIRST AND SECOND YEAR COURSES.

Inasmuch as for the coming year students, who are candidates for the degree of Doctor of Medicine, will be admitted only to the medical courses of the first and second years, the statement of the curriculum of these years is all that is announced in detail at present. Similar statements regarding the courses for the third and fourth years will be made hereafter.

ANATOMY.

The instruction in Anatomy is under the charge of Dr. FRANKLIN P. MALL, Professor of Anatomy, with the aid of Dr. J. Williams Lord, Instructor in Anatomy, and Dr. Lewellyn F. Barker, Associate in Anatomy.

The course in anatomy consists of vertebrate embryology, histology and histogenesis, and human anatomy. It is recommended that the student complete the greater part of the work in anatomy during the first academic year.

The course in embryology and histology is continuous during the first year, although either course may be taken by itself.

During the autumn and winter instruction in histology is given by lectures, demonstrations, and laboratory work. In the spring, vertebrate embryology is taught. The aim of the latter course is to throw as much light as possible upon the structure and development of tissues and organs and upon human anatomy in general.

Parallel with the above course that on human anatomy is given.

Beginning in the autumn with lectures, recitations, and demonstrations in osteology, the study of human anatomy is continued with practical work in the dissecting-room as soon as cool weather sets in. The aim is to teach as much as possible of human anatomy by work in the dissecting-room and by demonstrations, leaving only certain general and special topics for the lecture-room.

The more difficult dissections as well as the anatomy of the central nervous system are reserved for the second year.

Applied anatomy will be taught by the professors of medicine, surgery, and gynecology.

The new anatomical laboratory will be large enough to meet all the requirements and will be fitted up with all the necessary apparatus for instruction and research in embryology, histology, and gross anatomy. Instead of one large dissecting room, there will be a number of small dissecting rooms, which will thus afford the best opportunity for study. They will be open during the whole day and the evening.

PHYSIOLOGY.

The instruction in Physiology is under the charge of Dr. WILLIAM H. HOWELL, Professor of Physiology, assisted by Dr. George P. Dreyer, Associate in Physiology. It continues throughout the first year.

The work consists of lectures, experimental work in the laboratory, demonstrations, recitations, and conferences. Lectures are given three times a week throughout the year, and are fully illustrated by experiments and demonstrations given in the lecture-room. Weekly recitations are held upon the subject-matter covered by the lectures, and in the latter half of the year weekly conferences also form part of the class work.

The laboratory course is arranged so as to occupy six hours a week for about twelve weeks. In this course the students are required to perform the simpler experiments upon muscle, nerve, circulation, and vision, making use of the various graphic methods employed in physiology. The work is intended to give an idea of the methods used in experimental physiology, and to furnish also that basis of actual acquaintance with facts which is necessary for intelligent reading.

In addition to the foregoing exercises, which comprise the required work, students are given opportunities to participate in the more advanced courses carried on in the laboratory, and intended primarily as graduate work. These courses are as follows: A biological journal club meets weekly to discuss the recent literature in the various fields of biological research, including animal physiology. A physiological seminary meets weekly during the first half of the year to read and discuss some one or more of the older contributions to physiology, which are of interest because of their bearing upon the historical development of the science. In the latter half of the year the same hour is given up to a series of advanced lectures upon special topics in physiology, in which the subjects presented are treated exhaustively from the standpoint of the most recent contributions. An advanced course of laboratory work is arranged,—intended to teach the methods of physiological demonstration and research. This course is under the control of the professor of physiology, and is not limited as to time or amount of work, with the exception that assistance from the professor must be arranged for by definite engagements. This course is designed for those who expect to become teachers or investigators in physiology, pathology, or pharmacology, and the number permitted to take it is necessarily limited. For purposes of research the laboratory is well equipped. Those who are prepared to undertake special investigation are given every opportunity for work, including shop facilities for the construction of new apparatus.

PHYSIOLOGICAL CHEMISTRY.

The instruction in Physiological Chemistry is for the present under the charge of Dr. JOHN J. ABEL, Professor of Pharmacology, with the aid of Thomas B. Aldrich, Ph. D., Assistant in Physiological Chemistry.

Instruction in this branch is given by illustrated lectures, conferences of a less formal character, and laboratory work. It continues throughout the first year of the course.

In the lectures the substances that have been isolated from the fluids and tissues of the body are considered chiefly with regard to their connection with physiological processes. The physical and chemical properties of these substances and their chemical relationships also receive due attention whenever they promise to throw light on animal metabolism, for it is thought that a treatment of the subject which emphasizes the chemical properties of the constituents of the body will best prepare the student to meet important questions that will arise later in his study of pathology, pharmacology, hygiene, and practical medicine.

The laboratory instruction covers the following ground :

1. The isolation of the more important constituents of the various tissues and fluids of the body, of its secretions and excretions in health and in disease, and the study of such of the physical and chemical properties of these constituents as are of most importance from the physiological point of view.
2. The synthetic formation of some of these constituents, such as urea, uric acid, hippuric acid, cholin, leucin, and phenylsulphate of potassium.
3. Selected qualitative and quantitative methods employed in the study of the various tissues, the products of gastric and pancreatic digestion, the urine, blood, bile, biliary and renal calculi, milk, pus, and faeces.

PHARMACOLOGY AND TOXICOLOGY.

The instruction in Pharmacology is under the direction of Dr. JOHN J. ABEL, Professor of Pharmacology, with the aid of an Assistant. The instruction is given in the second year of the course by illustrated lectures and by laboratory work. Pharmacology is taught largely by the experimental method, and students will themselves arrange apparatus and perform experiments under the immediate supervision of the professor in charge.

The practical work includes such topics as the action of drugs on the heart, vessels and vasomotor apparatus, on the respiratory apparatus, brain and spinal cord, voluntary and involuntary muscles, kidneys, salivary and sweat glands, intestines, liver, etc. The chemical side of Pharmacology also receives due attention. The fate of drugs in the organism, their influence on the metabolism of the body and the manner of their excretion are studied in the laboratory in a number of typical instances. This practical work on both the physiological and chemical sides of Pharmacology occupies three afternoons a week throughout the first half of the second year.

A course of lectures with demonstrations in Toxicology will be given once a week in the second half-year.

It is expected that Pharmacy will be treated in a short course of illustrative lectures to be given by a skilled pharmacist, and that a short course of lectures with demonstrations will also be given on the subject of medical botany by a specialist in that branch.

Actual practice in prescribing drugs and in the employment and application of the various therapeutic agents used in medicine will be offered in connection with the practical clinical work of the third and fourth years.

PATHOLOGY AND BACTERIOLOGY.

The instruction in Pathology and Bacteriology is under the charge of Dr. WILLIAM H. WELCH, Professor of Pathology, with the coöperation of Dr. Simon Flexner, Associate in Pathology, and Dr. B. Meade Bolton, Associate in Bacteriology.

General and Special Pathological Anatomy and General Pathology are taught by lectures, recitations, demonstrations, and laboratory work. Instruction is given in the methods of making post mortem examinations and of recording in proper protocols the results. These courses continue throughout the second year. The laboratory work occupies three afternoons a week.

The principal subjects in General Pathology are taught as far as practicable by actual demonstration and experiment. Gross Morbid Anatomy and Pathological Histology are studied in conjunction with each other, the description and demonstration of gross lesions being followed by the preparation and examination of the microscopical lesions. Instruction in the technique of making pathological examinations, including the methods of pathological histology, and practice in pathological diagnosis are afforded. The students are required to make post-mortem examinations and to dictate protocols.

Bacteriology is taught by a practical laboratory course occupying nine hours a week for two months. Here the student becomes familiar with the preparation of culture media, the principles of sterilization and disinfection, the methods of cultivating, staining, and studying bacteria, the biological examination of air, water, and soil, and the important species of known pathogenic micro-organisms.

In addition to the courses for undergraduates in medicine opportunity is afforded for advanced work and special research in Pathological Histology, Experimental Pathology, and Bacteriology. For these purposes the Pathological Laboratory is well equipped with the necessary apparatus and is provided with sufficient material.

MEDICINE.

Under the charge of Dr. WILLIAM OSLER, Professor of Medicine, instruction will be given during the third and fourth years by means of ward classes, conferences, and work in the

clinical laboratory. As a preparation for it, instruction will be given towards the latter part of the second year by Professor Osler in Medical Topography and in Clinical Physiology.

SURGERY.

The instruction in Surgery is under the charge of Dr. WILLIAM S. HALSTED, Professor of Surgery. The principal instruction in surgery will be given during the third and fourth years.

As an introduction to the clinical and operative courses of these years, Professor Halsted will conduct during the latter part of the second year a course upon the Healing of Wounds in its Surgical Aspects. This is to be a practical course with laboratory methods and abundant material for observation. Both the macroscopical and the microscopical appearances of the various stages of repair of wounds will be studied. Among the subjects to be considered will be the characters of wounds of the various tissues and organs, such as the skin and subcutaneous tissues, bone, cartilage, muscle, tendon, vessels, intestine, etc.; healing by first and second intention and by granulation; the effect upon the progress of wounds of ligatures, sutures, drainage tubes, chemical substances, and foreign bodies in general.

CHARGES FOR TUITION.

The charge for tuition is two hundred dollars per annum, payable at the Treasurer's office, in semi-annual instalments, October 1 and February 1. There are no extra charges for instruction in any department or for laboratory courses except for materials consumed. A deposit of ten dollars as caution money is required from each student at the time of his enrolment. The caution money is repaid to the student when he leaves, if there are no charges against him. Special charges are made for breakage and for damage to apparatus.

Inquiries may be addressed to the Registrar of the Johns Hopkins University.

APPENDIX.

I.

THE MARY ELIZABETH GARRETT FUND.*

TERMS OF THE GIFT, AS ACCEPTED BY THE TRUSTEES, FEBRUARY 21, 1893.

Miss Mary Elizabeth Garrett, in order to make up the sum of \$500,000, which the Board of Trustees required should be secured as an endowment before the Medical School of the University was opened, has contributed to that fund the sum of \$306,977 upon the following terms, which have been agreed to by the University:

1. That women shall enjoy all the advantages of the Medical School of the Johns Hopkins University on the same terms as men, and shall be admitted on the same terms as men to all prizes, dignities or honors that are awarded by competition, examination or regarded as rewards of merit.
2. That not more than \$50,000 of the original endowment of \$500,000 shall be expended on a building or buildings; and that in memory of the contributions of the Committees of the Women's Medical School Fund, this building, if there be but one, or the chief building, if there be more than one, shall be known as the Women's Fund Memorial Building.
3. That the Medical School of the University shall be exclusively a graduate school as hereinafter explained, that is to say: That the Medical School of the Johns Hopkins University shall form an integral part of the Johns Hopkins University, and like other departments of the University, shall be under the management and control of the Trustees of the said University; that it shall provide a four years' course, leading to the degree of Doctor of Medicine; that there shall be admitted to the School those students only who by examination or by other tests equally satisfactory to the Faculty of the Medical School (no distinction being made in these tests or examinations between men and women), have proved that they have completed the studies included in the Preliminary Medical Course (Group Three, Chemical-Biological Course) as laid down in the University Register (but this condition is not meant to restrict the Trustees from receiving as hearers, but not as candidates for the degree of Doctor of Medicine, those who have received the degree of Doctor of Medicine, or its equivalent, in some school of good repute); and that the degree of Doctor of Medicine of the Johns

* So designated by the Trustees, December 24, 1892.

Hopkins University shall be given to no Doctors of Medicine who have not proved by examination or by other tests equally satisfactory to the Faculty of the Medical School that they have completed the studies included in the Preliminary Course, besides completing the course of instruction of the Medical School of the Johns Hopkins University.

The aforesaid provisions shall not be construed as restricting the liberty of the University to make such changes in the requirements for the admission to the Medical School of the Johns Hopkins University or to accept such equivalents for the studies required for admission to this school as shall not lower the standard of admission specified in this clause: provided that the requirements in modern languages other than English shall not be diminished, and provided also that the requirements in non-medical scientific studies shall include at least as much knowledge of natural science as is imparted in the three minor courses in science now laid down in its university register, the subjects and arrangements of these scientific studies being subject to such modifications as may from time to time seem wise to its Board and to the Faculty of the Medical School, but being at all times the same for all candidates for admission. (For such requirements always see University Register.)

4. That the terms of this gift and the Resolutions of October 28th, 1890, by which the Trustees accepted the gift of the Women's Medical School Fund, shall be printed each year in whatever annual calendars may be issued announcing the courses of the Medical School.—See appended Resolutions.

5. That there shall be created a committee of six women to whom the women studying in the Medical School may apply for advice concerning lodging and other practical matters, and that all questions concerning the personal character of women applying for admission to the School, and all non-academic questions of discipline affecting the women studying in the Medical School shall be referred to this committee, and by them be in writing reported for action to the authorities of the University; that the members of this committee shall be members for life; that the committee, when once formed, shall be self-nominating, its nominations of new members to fill such vacancies as may occur being subject always to the approval of the Board of Trustees of the University.

6. That in the event of any violation of any or all of the aforesaid stipulations, the said sum of \$306,977 shall revert to her, or such person or persons, institution or institutions, as she by testament or otherwise may hereafter appoint.

It will be observed that by the tenor of the aforesaid terms no university course will be in any way modified by any conditions attached to her gift. Those conditions relate exclusively to preparation for the Medical School, and have received, in the shape in which they are now presented, the unanimous approval of the Medical Faculty of the University.

The terms of admission to the Medical School of the University as formulated and interpreted by the Medical Faculty of the University, February

4, 1893, and here subjoined, are therefore in entire accordance with the terms of her gift.

(Signed)

MARY E. GARRETT.

REQUIREMENTS FOR ADMISSION TO THE MEDICAL SCHOOL OF THE JOHNS HOPKINS UNIVERSITY, UNANIMOUSLY APPROVED BY THE MEDICAL FACULTY, FEBRUARY 4, 1893.

A course of four years' instruction will be provided leading to the degree of Doctor of Medicine.

To this course there will be admitted as candidates for the degree:

1. Those who have satisfactorily completed the Chemical-Biological Course which leads to the A. B. degree in this University.

2. Graduates of approved Colleges or Scientific Schools who can furnish evidence: (a) That they have a good reading knowledge of French and German; (b) That they have such knowledge of Physics, Chemistry and Biology as is imparted by the regular Minor Courses given in these subjects in this University.

3. Those who give evidence by examination that they possess the general education implied by a degree in arts or in science from an approved College or Scientific School, and the knowledge of French, German, Physics, Chemistry and Biology, already indicated.

By approved Colleges and Scientific Schools are meant those whose standard for graduation shall be considered by this University as essentially equivalent to its standard for graduation in the undergraduate department.

It is to be understood that at least one year's study in the Chemical and Biological Sciences in their immediate relations to medicine shall be required from students after their entrance to the medical school.

II.

THE WOMEN'S MEDICAL SCHOOL FUND.

At a meeting of the Board of Trustees of the University, October 28, 1890, the following letter was presented:

"The committees formed for the purpose of raising a fund to procure the most advanced medical education for women, can now place at your disposal the sum of one hundred thousand dollars for the use of your medical school, if you will, by resolution, agree that women whose previous training has been equivalent to your preliminary medical course, shall be admitted to the school, when it shall open, upon the same terms which may be prescribed for men. There can be no doubt that women ought to be trained to act as nurses for sick women. There is as little doubt that a sufficient number of women ought to be educated and trained in such manner as to

be fully able to care for sick women who may wish or ought to be treated by women. We have devoted ourselves to the furtherance of this object. We have reason to hope that a university which proposes to found a medical school intended to teach advanced methods in the treatment of those diseases which afflict mankind, will not refuse to women the opportunity of learning such methods. There is now a general interest in our movement. In order that this interest may be sustained we ask you to consider our offer at the earliest possible period.

NANCY MORRIS DAVIS,
Chairman of the Baltimore Committee."

The following minute was adopted by the Trustees:

The President and Board of Trustees of the Johns Hopkins University have received from Mrs. Nancy Morris Davis, chairman of one of the committees formed for the purpose of raising a fund to procure the most advanced medical education for women, the gratifying intelligence that \$100,000 has been raised for the use of their intended Medical School, and is at their disposal, if they will, by resolution, agree to the terms upon which the money was contributed by its donors.

These terms are that this Board, if it accepts the funds thus raised, shall agree, by resolution, that, when its Medical School shall be opened, women whose training has been equivalent to the preliminary medical course prescribed for men, shall be admitted to such school upon the same terms as may be prescribed for men.

The offer to this University of the particular fund is the free voluntary act of women residing in this State and in other States, made without the suggestion or solicitation of this Board, and we accept it under and subject to the terms which are made a part of the gift, with the understanding and declaration, however, that such preliminary training in all its parts shall be obtained in some other institution of learning devoted, in whole or in part, to the education of women, or by private tuition.

The fund so contributed shall be invested and known as "The Women's Medical School Fund," and that fund, and all interest to accrue thereon, and all additions made thereto for the same purpose, shall remain invested for the purposes of increase only until, with its aid as a foundation, a general fund has been accumulated amounting to not less than \$500,000, and sufficient for the establishment and maintenance of a Medical School worthy of the reputation of this University and fully sufficient as a means of complete medical instruction. Then, and not until then, will a Medical School be opened by this University; and then, and not until then, will the gift now offered be used by this University; and then, and not until then, will the terms attached thereto be operative.

The utility of a training school for women nurses has been demonstrated by the experience and practice of the Johns Hopkins Hospital, and by the necessities of home life among our people.

This Board is satisfied that in hospital practice among women, in penal institutions in which women are prisoners, in charitable institutions in which women are cared for, and in private life, when women are to be attended, there is a need and place for learned and capable women physicians; and that it is the business and duty of this Board, when it is supplied with the necessary means for opening its proposed Medical School, to make provision for the training and full qualification of such women for the abundant work which awaits them in these wide fields of usefulness.

Nothing contained in this minute shall be construed as abridging, in any manner, the right of the Board of Trustees of the Johns Hopkins University to make such rules and regulations as they may deem necessary for the government of its School of Medicine, when it is organized; and in making such rules and regulations, the terms of this minute shall always be respected and observed.

WOMEN'S COMMITTEE OF THE MEDICAL SCHOOL, APPOINTED BY
MISS GARRETT, DECEMBER 22, 1892.

Their duties are stated in paragraph 5 of the letter printed above.

MRS. HENRY M. HURD,
MRS. IRA REMSEN,
MRS. WILLIAM OSLER,
MISS M. CAREY THOMAS,
MISS MARY M. GWINN,
MISS MARY E. GARRETT.

JOHN MURPHY & CO., PRINTERS,
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